Conducting Topic-Sensitive Research: Noncompliance in a Sri Lankan Hand Washing Study

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Abstract

English:

A hand washing intervention to reduce diarrheal disease which was invalidated by participant non-compliance provided an opportunity to elucidate pitfalls that may arise in international health education efforts. Twenty-two rural Sri Lankan families provided with soap and a brief instructional session prior to the planned study were asked to keep a log of diarrheal incidents for six weeks. Participants, however, denied any incidence of diarrhea.

Although the Sri Lankan investigator was highly successful in recruiting study participants, she was unable to elicit valid data about this sensitive topic. Few participants were willing to admit to socially undesirable behavior, demonstrating the need to learn how to make respondents sufficiently comfortable with sharing personal information with a researcher, (i.e., diarrheal episodes and hand washing).

Spanish:

Una intervención de lavarse las manos para reducir la enfermedad de diarrea, la cual fué invalidada por la falta de seguimiento de los participantes, provee una oportunidad para eludir los problemas que pueden surgir en un esfuerzo internacional de la educación de la salud. A veintidos Sri Lankan familias rurales, que fueron proveidas con jabón y una breve sesión educativa antes del estudio planeado, se les pidió que mantuvieran un recuento diario de incidentes de diarrea durante seis semanas. Los participantes, sinembargo, negaron la existencia de algún incidente de diarrea.

Aunque la investigadora logró un reclutamiento alto de participantes, ella no pudo obtener datos válidos acerca de este tema sensitivo. Pocos participantes estuvieron dispuestos a admitir este comportamiento socialmente indeseable, demostrando la necesidad de aprender cómo lograr que los participantes estén suficientemente cómodos para compartir esta información personal con un investigador (ejemplo., episodios de diarrea y lavado de manos).

Key Words: Sri Lanka, community health, hand washing, educational program, diarrhea, noncompliance

Introduction

Although the importance of hand washing has been well documented in studies of American health care workers (Hugonnet and Pittet, 2000; Kretzer and Larson, 1998; McGuckin et al, 1999; Pittet, 2001; Sharir et al, 2001; Serkey and Hall, 2001; Teare et al, 2001), in countries like Sri Lanka, there is a paucity of research on how to best address hand washing hygiene (see e.g., Curtis, Cairncross and Yonli, 2000; Kaltenthaler and Pinfold, 1995). This issue is especially critical given that the residents' manual method of removing residual post-defecatory fecal matter can contribute to diarrheal disease, as indicated by research in India that found that only 2.8% of residents claimed to wash their hands after going to the bathroom while the rate of hand washing before cooking was 1.6% (Singh et al., 1992). Yet because bathroom hygiene is a sensitive topic, few academicians have studied either how it is carried out or the health consequences of such behavior for diarrheal disease.

This dearth of discussion about this topic undoubtedly stems from researchers' limited ability to obtain information about such a personal matter. This paper offers an account of how an attempt to gather information about this important, yet understudied area was hampered by a range of factors that prevented the collection of valid data. By elucidating factors that impinge on the compilation of information about personal bathroom hygiene, future researchers can better design and conduct studies to change behavior that will reduce the incidence of fecal-oral transmitted disease.

Background

In addition to diarrhea and cholera, hepatitis A (which causes liver disease) is also spread through fecal-oral contact. Although most healthy individuals recover in a few weeks from hepatitis A (the effects of which include symptoms resembling the flu and stomach aches), its transmission provides further motivation to encourage an optimal means of preventing or reducing the spread of disease--hand washing prior to eating or preparing meals.

Rather than using toilet paper, many Asian individuals, including numerous Sri Lankans, clean the perineal region by pouring water over the genitals. It is important to note, however, that among some wealthy families, bidets obviate the need for digital cleaning of the anal area. Unless an individual is using a bidet, residual fecal matter is removed using the fingers of the left hand. This custom explains why using the left hand is taboo when engaging in other activities in countries that have such a method of bathroom hygiene. In Sri Lanka, for example, individuals use only the right hand to eat and pass money.

Because Sri Lankans eat with their hands (rather than use silverware), the need for appropriate bathroom hygiene is especially critical. Even such foods as rice

covered in a liquid sauce are scooped up with the fingers in order to be eaten. Although Americans frequently eat food with their hands (e.g., fast food fare) and Mexicans, for example, pick up food with a tortilla (which also eliminates the need for silverware), these practices become problematic when they co-exist with risky bathroom hygiene. In addition, when Sri Lankans prepare food, there is substantial hand-food contact, including with foods that are not cooked (relevant since heat kills most bacteria and because glove use is rare [Montville et al., 2001]).

Method

The original intent of this research was to determine whether education about and encouragement of hand washing after going to the bathroom and before cooking and eating would decrease the incidence of diarrhea spread through fecal-oral transmission over a six-week period. The project's duration was from the first week of July to mid-August, 2001, after review and approval by a college institutional review board (IRB) that assessed the study's ethical integrity. The planned outcome measures were the change in the incidence of diarrhea and the change in weight over the study period (since diarrhea causes fluid loss, likely to affect weight). The study location, a remote town south of Colombo (the capital), Kaduwela, has an estimated population of 50-75,000 people (Sri Lanka has a population of 17.6 million people [US AID, 2000]). Kaduwela was selected because the investigator's family was well acquainted with many of the rural villagers and also owned an ancestral home in the town (where the investigator's father grew-up). The people of the village are of low socio-economic status and the language spoken is Sinhalese. It should also be noted that the villagers have a supply of safe drinking water available through modern plumbing in their homes that is connected to a safe water supply.

During the first week of July 2001 (on a Sunday), the researcher solicited the participation of 62 persons in 22 households (some of which included extended family who commonly reside together in one household in Sri Lanka) in an area selected at random from the village. All (100%) agreed to participate. The villagers knew the researcher's family and welcomed her presence in their homes. Although the investigator was quite fluent in Sinhalese, English was her first language, spoken at home and at school as a child. Subjects were informed that participation in the study was completely voluntary and they were free to drop out of the study at anytime during the six week long study period. At the beginning of the study, with the assistance of a thirty-year-old male family friend fluent in Sinhalese, villagers were educated about the importance of washing their hands after using the bathroom and before meals. The educational sessions were conducted privately in each participating household. In addition, cakes of soap were provided to participants.

Participants were informed of the purpose of the study and then asked about their frequency of diarrheal episodes as well as their hand washing practices in order to obtain a rough baseline measure of such variables. The investigator and her assistant (who lives in the village and knew all the villagers, including those in the study), handed out cakes of soap every two weeks at which time participants' weight was recorded. Each member of the household was asked to record the number of times they had loose bowel movements and the number of times they washed their hands (with the soap provided) each day.

Results

Most of participants, especially the ones who were outspoken enough to express their thoughts, questioned the investigator as to why people in the United States would assume that they do not practice proper hygiene. Many of the participants were quite defensive and informed the investigator that improper hygiene may be more common among the rural population in India rather than in Sri Lanka. In the village, they had proper plumbing facilities and claimed to be aware of the need to be clean. The investigator felt uncomfortable and was worried that she may have offended them given that her family lives in the city, is of a higher social class and because of her obtaining her higher education in the United States (although she was educated in Sri Lanka through high school). A few families asked her what she was planning to do with the study results and how it would benefit Americans. Although there is not palpable anti-American sentiment in Sri Lanka, its slower pace of life may make some Sri Lankans wonder if Americans (and the American-educated principal investigator) look down on them as less developed. This kind of apprehension could have had a negative impact on participants' cooperation.

The investigator spent a great deal of time (usually from 15 minutes to a half an hour) making pleasant conversation with the families rather than getting directly to the point as to why she chose to come into their homes (in accordance with Sri Lankan custom for initial pleasantries prior to business). The investigator was warned initially by her companion from the village not to refuse to take a seat in their living rooms since the villagers might otherwise have incorrectly assumed that she did not want to mix with them. There were, however, mixed reactions and a sense of bewilderment that the investigator was expecting the respondents to log loose bowel movements which may have been a reason why the majority of them did not log such occurrences nor were they willing to discuss them with an outside person. Even the investigator's willingness to reveal non-compliance in her own family (who were not included in the study) had no effect on the villagers' candor.

Discussion

From the beginning of the study, there were indications that obtaining valid data would be difficult. When the

investigator attempted to collect data for a baseline prevalence of diarrhea, no villagers reported having diarrheal episodes and all claimed to use soap regularly after performing bathroom functions. They maintained that they were already aware of the importance of hand washing. Previous research (in rural Thailand) has demonstrated that an increase in knowledge about hygiene does not always lead to improved hand and dishwashing practices (Pinfold, 1999). Yet in these findings, participants claimed that they were already aware of and practicing hygienic hand washing routines. These claims, however, were unverifiable, exacerbating already existing questions of validity stemming from participants' denials that they experienced any diarrhea.

Despite the denials about incidents of diarrhea, some participants admitted that they did not use soap when washing their hands after going to the bathroom or before cooking. But it was only in 5/22 households (23%) that participants felt comfortable enough to report that they did not wash their hands with soap. Yet even these forthcoming individuals were eager to gain respect by pointing out that they always made sure that their children practiced good personal hygiene. One quarter of household spokespersons implied that since their mothers prepared the meals for the household, their own lack of hand washing was acceptable. They said that they usually washed their hands without soap after eating, unless they needed soap to remove strong odors from their hands after eating fish or oily foods. Although they admitted that they were not concerned about washing their hands with soap, they stated that they used soap during the research period to comply with the study. There was no log, however, to document such claims. In fact, no one complied with the suggested recording of loose bowel movements during the six-week long study period (which was justified by the claim by nearly all respondents that there was not a single incident of diarrhea). In the three households in which participants admitted that someone had diarrhea, the log was nevertheless abandoned because the participants felt the episodes were so infrequent that there was no need to record them. Study participants dismissed the importance of the research, partly because of their lack of understanding of how hygiene practices interact with commonly eaten foods to result in substantial diarrheal disease.

Perhaps if participants had been told of this connection between bathroom hygiene and food safety in greater detail, they might have been more willing to provide valid data. For example, villagers could have been told how the preparation of a dish, coconut sambol, eaten virtually daily in Sri Lanka, poses a risk of infection. The manner in which it is made reveals the potential for food safety problems: the meat of the coconut is scraped with a sharp tool which is then combined with pearl onions, dried red chilies, salt crystals, maldive fish, ground pepper and chili powder. This mixture is then placed on a stone platter and crushed with a stone rolling pin requiring the use of both hands. At this point, the mass is placed into a dish and lime juice is squeezed by hand over it. The sambol is then mixed by hand. Although the right hand is used to squeeze the lime juice and mix the sambol, the left hand is used during the crushing process and comes into contact with the food. The sambol is then eaten without any cooking or heating, or refrigeration.

Adverse health consequences from such unhygienic practices were publicized in the Sri Lankan press in July, 2001 when a major catering service at a conference hall in Sri Lanka's capital, Colombo, had to be closed temporarily. At least 70 of the 176 Sri Lankan doctors attending a convention organized by the Government Medical Officers Association developed diarrhea, chest pain and headaches after partaking of a buffet dinner which marked the 75th annual general meeting. The cause was determined to be a bacterial organism usually present in fecal matter, found to be in samples of the food served (Malawaraachchi, 2001; Staff Reporter, 2001). The food samples that were tested (at the Medical Research Institute in Colombo) contained a high amount of E. Coli while other tested food samples contained Salmonella type D. Further investigations revealed that the kitchen had no soap and the cold storage rooms were not clean. It is improbable that this is an isolated case of unhygienic practices resulting in illness. This incident likely received publicity because of the magnitude of the outbreak and the social class of those who became ill.

Given the problems stemming from such documented hygiene deficits, persons familiar with Sri Lankan culture are needed to remedy the problem. Since the investigator's family was known and respected in the village, she was highly successful in recruiting study participants (0% refusal rate). Yet such an advantage did *not* help her secure valid data. Perhaps dealing only with women as informants would have resulted in more honest responses. In most (18 or >80%) of households, women spoke on behalf of their families (that consisted of two parents and often in-laws). Women appeared to be more comfortable discussing the subject matter. In fact, many of the husbands were aloof, preferring that their wives handle this strange project. In addition, oral accounts might be preferable to written logs since it may seem less cumbersome to record such information that also may seem more embarrassing when written down. In the future, the quality of data from this type of study might be improved by asking participants first to supply less personal information so that when they are later asked to furnish the investigator with data addressing the central research question, they are accustomed to the researcher-respondent relationship and the act of providing data.

Because weighing participants in this study to determine the impact of hand washing compliance was insufficiently sensitive to effectively measure any impact of the intervention, other techniques are

warranted. For example, investigators could use a fingertip examination for the presence of transient fecal bacteria (Pinfold, 1999), more frequent or preferably daily intermediary progress checks for digital examination of fecal matter, financial incentives to complete diarrheal logs if sufficient resources are available, and more pre-study education about the hand washing-disease connection.

Conclusion

Despite the importance of the problem of diarrhea and unhygienic cultural practices, attempts to study this phenomenon, and in particular, to increase regular hand washing (with soap), are fraught with manifold obstacles resulting from participants' unwillingness to provide information that might reflect poorly on them (Giacalone et al., 1997). Although there is ample evidence that investigators may experience difficulty trying to circumvent the cultural barriers in data collection (see e.g., Bailey 1994; Kielich & Miller, 1996; Ostroot et al.,1985; Stix, 1996; Terry, 1994; Weaver 2001), topic-sensitive research poses an especially difficult challenge that in this research became apparent only at the end of the period intended for data collection, rather than during study recruitment. Participants probably did not want to disappoint the researcher by refusing to take part in the study, but their desire to be helpful did not extend to their compliance. Even researchers familiar with a study culture (or who are a member of this culture) must be cognizant of the pitfalls of relying on participants' self-reporting information that may be deemed highly personal. This paper illustrates that public health practitioners who aim to prevent bacterial-born fecal-oral contamination, in part responsible for the prevalence of diarrhea in countries like Sri Lanka, must devise ways to address obstacles to data validity posed by topic-sensitive research.

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